IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

SILCOTEK CORPORATION,

Civil Action No. 1:23-cv-00281-JPM

Plaintiff,

Judge Jon P. McCalla

v.

WATERS CORPORATION,

Defendant.

PLAINTIFF'S RESPONSIVE CLAIM CONSTRUCTION BRIEF

Francis DiGiovanni (No. 3189)
Thatcher A. Rahmeier (No. 5222)
FAEGRE DRINKER BIDDLE & REATH LLP
222 Delaware Avenue, Suite 1410
Wilmington, DE 19801
(302) 467-4200
francis.digiovanni@faegredrinker.com
thatcher.rahmeier@faegredrinker.com

AND

Cecilia R. Dickson

Kent E. Baldauf, Jr.
Barry J. Coyne
THE WEBB LAW FIRM
One Gateway Center
420 Ft. Duquesne Blvd., Suite 1200
Pittsburgh, PA 15222
412.471.8815
cdickson@webblaw.com
kbaldaufjr@webblaw.com
bcoyne@webblaw.com

Attorneys for SilcoTek Corporation

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I. INTRODUCTION

After reviewing its opening brief, it is apparent that it is Waters, not SilcoTek, that has a big problem. Waters knows it infringes, and because of that, has engaged in a barrage of argument acrobatics to try to cajole this Court into disregarding the well-established hierarchy of evidence that is properly considered during claim construction, abandoning the intrinsic record, and adopting extrinsic evidence plucked out of thin air (from the wrong time period) that does not remotely apply to the context of the patents-in-suit. Waters' attempt to turn the law of claim construction on its head by elevating one-sided extrinsic evidence over the unambiguous intrinsic record should be rejected.

The proper legal construction of the term "carboxysilane" is clear from the cited intrinsic evidence for the '020 Patent. But, as Waters all but admits in its opening brief (see Doc. 54 at 1), it infringes under that construction, and so it presents this Court with a far-fetched interpretation that it believes will pave the way for it to escape that inevitable finding. Waters and its expert, Dr. DeFilippi, desperately searched for any extrinsic evidence to come up with an alternate construction of "carboxysilane" while at the same time inconsistently and inappropriately arguing that the term is not enabled or, at least initially, indefinite. Waters' big problem on the "carboxysilane" front is further compounded because it is not only impermissibly basing its proposed construction entirely on extrinsic evidence, but also that extrinsic evidence, in the form of its expert's inconsistent opinions and third party reference materials, is actually in conflict with the intrinsic prosecution history and prior art cited therein.

In the '020 Patent, "carboxysilane" is claimed as included in the base layer of an amorphous coating. Yet, Waters' proposed construction ignores that context, and instead incorporates the chemical formula of a different compound that does not specifically pertain to amorphous coatings

relying on extrinsic IUPAC and PubChem citations. Waters goes so far in ignoring the import of the context of the patent by making the bizarre suggestion that SilcoTek's proposed construction should be rejected because it would include materials like construction caulking. This type of argument is a variation on a legally incorrect theme that Waters plays again and again in its various construction positions. The Court is certainly entitled to and should look to see how a claim term is used in the prosecution history and cited prior art, which includes prior art patents and published applications, to determine the ordinary and customary meaning of that term in the context of the asserted patent. Doing so here reveals that the construction of "carboxysilane" from the intrinsic record is far different from Waters' construction. Waters' construction must thus be rejected.

Waters' big problem does not stop at its impermissible redefinition of "carboxysilane," but also exists with regard to all of the other disputed claim terms for the '020 and '986 Patents, which consist of words and phrases that are not highly technical or vague and have plain and ordinary meanings that even Waters admits are commonly understood by a person of ordinary skill in the art ("POSITA"). See, e.g., Doc. 54 at 13. Thus, no construction of these other claim terms in dispute is necessary. Nonetheless, Waters seeks to improperly read additional limitations into or change words in these other disputed claim terms by relying on extrinsic evidence to "aid the jury." But that is the wrong standard. The ordinary and customary meaning of a claim term is the meaning that the term would have to a POSITA, not what a party believes will aid the jury. See Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005). Waters' proposed constructions for these other disputed claim terms must also be rejected.

Finally, Waters' lack of enablement arguments fail and should be rejected. "Enablement concerns do not justify departing from the plain and ordinary meaning" and courts "should be cautious not to allow claim construction to morph into a mini-trial on validity." *Hill-Rom Servs.*,

Inc. v. Stryker Corp., 755 F.3d 1367, 1374 (Fed. Cir. 2014). Validity arguments, such as lack of enablement, are not proper during claim construction, and thus the Court should not address Waters' enablement arguments here. *See Haddad v. U.S.*, 164 Fed. Cl. 28, 67–68 (2023).

II. WATERS MISAPPLIES THE LEVEL OF ORDINARY SKILL IN THE ART

Contributing to Waters' big problem is the adoption of an unduly restrictive view of what a POSITA would know in the liquid chromatography and chemical coatings fields. This is a problem because claims must be understood from the perspective of a POSITA at the time of the invention. *See Phillips*, 415 F.3d at 1313. Although Dr. DeFilippi agreed with SilcoTek's definition of a POSITA and that a POSITA would have knowledge or experience in applying or working with coatings on metallic surfaces such as columns (*see* Ex. J¹ at 97:17-99:7), he asserts that a POSITA would not know basic methods such as how to apply an "amorphous coating having a base layer and a surface layer" or how to coat surfaces that "cannot be simultaneously coated through line-of-sight techniques." *See* Ex. 3 at ¶ 49, Ex. 22 at ¶ 44.

Dr. DeFilippi's failure to recognize and apply the knowledge of a POSITA stems from his lack of any *recent* experience working with POSITAs in this field or working with the technology at issue in this case. For example, Dr. DeFilippi admitted (1) the last time he packed a column of any type was in 2000 to 2002; (2) the last time he packed a metallic column was in 1996-1997; (3) the last time he used a surface characterization technique was 1997; (4) the last time he deposited material for coatings on liquid chromatography systems was 1997; and (5) the last time he taught a college level class was in 1985. *See* Ex. J at 68:23-72:13; 83:6-8. Dr. DeFilippi even admitted

¹ All references to Ex. A through Ex. I herein refer to the exhibits attached to Plaintiff's Opening Brief (Doc. 56). All references to Ex. J through Ex. L refer to the exhibits attached to this brief. All references to Ex. 1 through Ex. 70 herein refer to the Declaration of Jeffrey A. Miller filed by Waters (Doc. 55).

that he has never used Chemical Vapor Deposition ("CVD") or CVD techniques to apply a coating to an HPLC system or component. *See id.* at 75:25-76:2. Dr. DeFilippi's opinion on what a POSITA would know must thus be viewed with skepticism, as he lacks the recent experience necessary to appreciate the contextual knowledge of POSITAs during the relevant time period.

In contrast, Dr. Schug, a professor of Analytical Chemistry at the University of Texas at Arlington, an undisputed expert in the area of analytical chemistry, including the field of liquid chromatography, has over 20 years of relevant experience. *See* Ex. C at ¶¶ 1-13; Schug² at ¶¶ 7-12. As a working, teaching professor, Dr. Schug has routine contact with POSITAs (his graduate students), and is teaching undergraduate students who will become POSITAs. *See*, *e.g.*, Ex. C at ¶ 31. Dr. Schug knows what a POSITA had been taught (because he is actively teaching them) and what knowledge a POSITA would have at the time the patents were filed. He routinely performs activities that Dr. DeFilippi has not done in well over twenty years.

III. CLAIM CONSTRUCTION OF DISPUTED TERMS FROM U.S. PATENT NO. 11,131,020

A. "Carboxysilane"

SilcoTek's Proposed Construction	Waters' Proposed Construction
A material that comprises silicon, oxygen, carbon and hydrogen and having siliconoxygen bonds and siliconcarbon bonds.	Lacks enablement support under 35 U.S.C. § 112(a) Alternatively, "a chemical with the following structure: R O II R - Si - C - OH R ."

A POSITA would understand *in the context* of the '020 Patent, its prosecution file history

² Citation to "Schug" herein refers to the Expert Report of Dr. Kevin A. Schug on Claim Construction, Exhibit 1 to the Expert Rebuttal Report and Declaration of Dr. Kevin A. Schug on Claim Construction (Ex. C).

and cited prior art, and the field of chemical coatings to which the '020 Patent relates, as of the time period of the invention disclosed in the '020 Patent that the term "carboxysilane" should be construed to be a material that comprises carbon (C), oxygen (O), hydrogen (H) and silicon (Si) and having silicon-oxygen bonds and silicon-carbon bonds. See Schug at ¶ 20-26; Ex. C at ¶ 37, 40-59. But given that this construction does not comport with its litigation aims, Waters seeks to construe "carboxysilane" in a vacuum rather than in the proper context of the written description and the prosecution history. See Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1319 (Fed. Cir. 2005). Instead of beginning with the intrinsic evidence as it should, Waters improperly starts with extrinsic evidence in the form of general reference materials and expert testimony that is clearly at odds with the intrinsic evidence. See Sequoia Tech., LLC v. Dell, Inc., 66 F.4th 1317, 1325 (Fed. Cir. 2023); see also Seabed Geosolutions (US) Inc. v. Magseis FF LLC, 8 F.4th 1285, 1290 (Fed. Cir. 2021); Phillips, 415 F.3d at 1318-19; Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996). Waters' backwards analysis should be rejected.

1. There is No Single Commonly Accepted Ordinary Meaning of "Carboxysilane"

Waters is simply wrong that "carboxysilane" has a single, accepted, ordinary meaning. Waters own expert admitted that "[1]ooking outside the '020 patent, carboxysilane is a term associated with a vast number of compounds." Ex. 3 at ¶ 60; Ex.22 at ¶ 18. He even stated that "(a) Google search is consistent with the non-existence of a particular compound." *Id.*, *Id.*

Nonetheless, Waters contends that the term "carboxysilane" is not indefinite and has one common ordinary meaning, relying principally on the IUPAC nomenclature rules. Doc. 54 at 4; see Ex. J at 163:14-167:18. Dr. DeFilippi acknowledged, however, that the IUPAC nomenclature that Waters now relies on to construe "carboxysilane" was "extrinsic evidence from a legal standpoint" and was not mentioned in the '020 Patent. Ex. J at 241:11-244:13. As Dr. DeFilippi

admitted, "one could readily assume they did not say or print that IUPAC nomenclature was used in order to come up with the term ... in [any of the claims]." Ex. J at 241:22-244:8. Waters selectively cites SilcoTek's expert Dr. Schug's testimony regarding the IUPAC nomenclatures (see Doc. 54 at 5-6) but leaves out the most important part: Dr. Schug stated that relying on the "extrinsic evidence" in IUPAC to define the term "carboxysilane" to refer to a chemical structure that contains a carboxylic acid "ignores the intrinsic evidence." Ex. 9 at 123:19-22. And it is fundamental that the intrinsic record cannot be ignored and discarded in favor of an unrelated extrinsic source. See Vitronics, 90 F.3d at 1584. None of the cases cited by Waters (see Doc. 54 at 4-5) used IUPAC to contradict or override the intrinsic record. For example, in Glycobiosciences, Inc. v. Innocutis Holdings, LLC, 146 F. Supp. 3d 221, 232 (D.D.C. 2015), the court only turned to extrinsic evidence "[g]iven the absence of any conclusive intrinsic evidence."

In starting its analysis with the IUPAC nomenclatures, Waters does not start where it needs to and ignores the context. The starting point for any claim construction under Federal Circuit law is the language of the claim, itself. *Phillips*, 415 F.3d at 1313 ("the person of ordinary skill in the art is deemed to read the claim term *not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.") (emphasis added). Here, the context for the '020 Patent in which the claim term "carboxysilane" is used is a "liquid chromatography system" that comprises "an amorphous coating on the substrate, the amorphous coating having a base layer and a surface layer, the base layer including carboxysilane." <i>See* Ex. A, claim 1. The IUPAC "Brief Guide to the Nomenclature of Organic Chemistry" Ex. 7) that Waters cites does not apply to the materials in amorphous coatings as claimed, but rather indicates that the "[s]ubstitutive nomenclature" that it sets forth "is the main method for naming organic-chemical compounds." *See* Ex. 7 at 105. IUPAC nomenclature should

not be relied on in the context of the '020 Patent. See Ex. 9 at 123:19-22; 140:3-12.

Moreover, the IUPAC "Brief Guide to the Nomenclature of Organic Chemistry" (Ex. 7) that Waters cites is not only extrinsic evidence, but also is evidence that should not even be considered in this claim construction because it is dated June 2021, well after the filing date (May 8, 2020) and effective filing date (September 1, 2015) of the '020 Patent.³ See Ex. A. "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313. The IUPAC guide should not be considered as it was not available at the time of the invention. See Brookhill-Wilk 1, LLC. v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003) (refusing to consider dictionary and treatise evidence regarding ordinary meaning because the sources were not contemporaneous); see also Phillips, 415 F.3d at 1313, 1332.

Likewise, the National Institute of Health's "PubChem" reference that Waters and Dr. DeFilippi also cite (Ex. 16) is extrinsic evidence that should not be considered in this claim construction because it is dated "2023-10-07" (see Ex. 16 at WATERS0007260 under "Modify"), again well after the filing date and effective filing date of the '020 Patent. See Ex. A. This PubChem reference is for "Silanecarboxylic acid" and only lists "carboxysilane" as a synonym.

³ Waters tries to fix this obvious fatal injury with an ineffectual bandaid. Waters attaches an "Affidavit of Nathaniel E Frank-White" as Exhibit 8 to its brief regarding an Internet "Wayback Machine" webpage that Waters refers to as "2008 Table 5 IUPAC Suffixes and Prefixes for Some Important Characteristic Groups in Substitutive Nomenclature." *See* Doc. 54 at 5; Ex. 8 at Ex. A. Besides the fact that SilcoTek was not given the opportunity to cross-examine Mr. Frank-White regarding his affidavit, which thus constitutes hearsay, the title of the table in Ex. A is not "IUPAC," is not dated, let alone dated 2008, other than an internet link, and does not mention the word "silane." SilcoTek thus objects to the consideration of this affidavit. However, if it is considered, it does not support Waters' construction of "carboxysilane" as it does not even reference the terms "carboxysilane" or "silane."

There is no dispute that neither "Silanecarboxylic acid" nor its chemical formula that Waters now alleges constitutes the ordinary meaning of the term "carboxysilane" appear in the '020 Patent. See Ex. C at ¶¶ 49-52; Ex. J at 215:20-216:11; 223:25-224:17. This is why extrinsic evidence divorced from the context of a patent is improper and cannot override the intrinsic meaning.

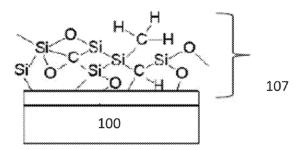
As Dr. Schug testified, the IUPAC and PubChem definitions of "carbosysilane" are "extrinsic evidence" that is "not consistent with how it would be defined by a person of ordinary skill in the art considering the '020 patent and its prosecution history and the prior art there." Ex. 9 at 140:3-12. The inventor of the '020 patent did not have a special definition for "carboxysilane" as Waters half-heartedly suggests either. Ex. 9 at 142:14-143:1. Rather, as Dr. Schug testified, "a person of ordinary skill in the art" would rely on the prior art that defines "carboxysilane" "if they were reviewing this prosecution history and prior art of this patent." *Id*.

2. The Intrinsic Evidence Supports SilcoTek's "Carboxysilane" Construction

SilcoTek's construction is fully consistent with the specification of the '020 Patent. Waters' argument that the specification says nothing at all about the structure of "carboxysilane" (see Doc. 54 at 7) ignores that the rest of the intrinsic record in the form of the prosecution history and the cited prior clearly indicate how the term "carboxysilane" was understood by the inventor and the PTO, what its structure is, how it is made, and thus what the construction should be. See Phillips, 415 F.3d at 1317 ("Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent."); Sequoia Tech., 66 F.4th at 1327. As the Federal Circuit stated, "[w]e cannot look at the ordinary meaning of the term ... in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history." Medrad, 401 F.3d at 1319 (citations and internal quotations omitted). "[P]rior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic

evidence." *Kumar v. Ovonic Battery Co., Inc.*, 351 F.3d 1364, 1368 (Fed. Cir. 2003). "When prior art that sheds light on the meaning of a term is cited by the patentee, it can have particular value as a guide to the proper construction of the term, because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning." *Arthur A. Collins, Inc. v. N. Telecom Ltd.*, 216 F.3d 1042, 1045 (Fed. Cir. 2000).

As set forth by the Examiner in the Notice of Allowance for the '020 Patent (Ex. D), U.S Patent Publication No. 2014/0357091 to Mattzela ("Mattzela") (Ex. E) discloses an amorphous carboxysilane base layer at paragraphs [0041], [0066], and [0083] (Example 13). Mattzela states that "[i]n an embodiment with the layer 102 being amorphous carbosilane, the oxidized layer 107 formed by the oxidation (step 208) or the post-functionalization oxidation is or includes amorphous carboxysilane." *See* Mattzela at [0041]. Figure 4 of Mattzela, reproduced below, shows the oxidized layer 107 that is or includes amorphous carboxysilane as a material that comprises carbon (C), oxygen (O), hydrogen (H), and silicon(Si) and having silicon-oxygen (Si-O) and silicon-carbon (Si-C) bonds:



U.S. Patent No. 9,777,368 to Smith et al. ("the '368 Patent") (Ex. F), which is the parent patent to Mattzela and was cited in an information disclosure statement filed by SilcoTek during prosecution of the '020 Patent and reviewed by the Examiner (see Ex. G), further discloses that carboxysilane can be formed by chemical vapor deposition by decomposition of dimethylsilane to form a carbosilane followed by oxidation to form a carboxysilane. See Ex. F, col. 3, 1l. 46-51.

Figure 8 of the '368 Patent, shown below, discloses an embodiment in which a layer 102 of amorphous carbosilane is oxidized to form an oxidized layer 802 of amorphous carboxysilane (*see* Ex. F, col. 6, ll. 30-40; col. 7, ll. 50-58), which comprises a material comprising carbon, oxygen, hydrogen and silicon and having silicon-oxygen bonds and silicon-carbon bonds. *See also* Ex. F, Fig. 9; col. 9, l. 58-col. 10, l. 2; PCT Patent Application No. PCT/US2016/049647 (Ex. H) at [0030], [0039]; PCT Patent Application No. PCT/US2011/054835 to Smith (Ex. I) at [0047], [0060]-[0065].

This intrinsic evidence supports SilcoTek's construction. *See* Schug at ¶¶ 20-26; Ex. C at ¶¶ 37, 40-59.

Waters' statement that the '020 Patent does not contain "in-depth details" on how to make carboxysilane (Doc. 54 at 8) ignores the disclosure in the specification of the '020 Patent as well as the rest of the intrinsic evidence such as the prosecution history and the Mattzela and Smith prior art, again in contravention of proper claim construction procedure. *See Phillips*, 415 F.3d at 1317; *Sequoia Tech.*, 66 F.4th at 1327. Dr. DeFilippi is correct that the specification states that "[t]he silicon-containing precursor gas(es)" used to apply the coating "is/are any suitable species capable of producing coating 121 through thermal decomposition," including "dimethylsilane" and "trimethylsilane," among other precursor gases. *See* Doc. 54 at 8; Ex. A, 5:14–20. However, Dr. DeFilippi's further explanation cited by Waters that "both dimethylsilane and trimethylsilane

will readily undergo thermal decomposition in the presence of heat and oxygen into 'substrate-bound carboxysilane-containing compounds'" (Doc. 54 at 8) is absolutely incorrect. Indeed, his statement may stem from his lack of experience in using CVD techniques to apply a coating to an HPLC system or component (see Ex. J at 75:25-76:2) as a "thermal decomposition in the presence of heat and oxygen" would likely result in an explosion.

Rather, vapor deposition and oxidation of the precursor gas dimethylsilane would result in "carboxysilane" as proposed by SilcoTek (*see* Ex. F, col. 3, l. 46-51), but would not result in the "silanecarboxylic acid" or carboxylic acid that Waters asserts is the construction of "carboxysilane" unless further extensive oxidation of the applied base layer occurs. *See* Ex. C at ¶ 55-56. Mattzela and Smith also disclose that the "carbosilane" layer is subsequently oxidized to "carboxysilane" to form the base layer. *See* Ex. C at ¶ 56. Smith in particular discloses that "carboxysilane" can be formed by chemical vapor deposition by decomposition of "dimethylsilane" to form a "carbosilane" followed by oxidation to form "carboxysilane." *See* Ex. F Patent, col. 3, l. 46-51. That is consistent with the specification of the '020 Patent which lists "dimethylsilane" and "carbosilane" as precursor gases that can be oxidized to form a base layer including "carboxysilane." *See* Ex. A, col. 5, ll. 14-39.

A POSITA would certainly understand how to apply or construct an "amorphous coating having a base layer and a surface layer" where "the base layer including carboxysilane" based on the disclosure of the '020 Patent and the common knowledge of a POSITA. Ex. C at ¶ 31. The use and application of coatings is standard knowledge for a POSITA. *Id.* For example, Dr. Schug has personally taught about the use and application of these coatings in his senior level instrumental analysis classes for chemistry and chemical engineering majors, and even now, Dr. Schug and his students are analyzing the coatings on columns in his laboratory. *Id.* Even Waters'

Dr. DeFillipi admits in his description of the "state of the prior art" that "vapor deposition of silanes stood as a well-established method for surface modification." *See* Ex. 3 at ¶ 61; *see also* Ex. C at ¶ 38.

In addition, the '020 specification provides a detailed description of how to prepare the coating using a thermal CVD process. *See*, *e.g.*, Ex. A, col. 3, l. 3 – col. 7, l. 22; *see also* Ex. C at ¶ 32. Specifically, the detailed description in the '020 specification identifies 5 working examples (col. 10, l. 62-col. 11, l. 29) as well as the precursor gases, *i.e.*, the chemicals, that could be used in the examples (col. 5, ll. 14-39), the concentrations of those gases (col. 5, ll. 40-48), the thickness of the coating (col. 5, l. 57- col. 6, l. 13), the temperatures of the gases (col. 6, ll. 14-44), and the pressures for the gases (col. 6, ll. 45-53). Ex. C at ¶ 35. A POSITA would know how to prepare such coatings even without the detailed description provided by the '020 specification. *See* Ex. C at ¶ 32.

3. Waters' Construction of "Carboxysilane" Must Be Rejected

Waters' proposed construction deviates from the intrinsic evidence and is plainly litigation-driven to avoid infringement. Waters admits that the chemical structure that it proposes would be inconsistent with the '020 Patent's prosecution file history and the prior art cited therein as detailed above when viewed through the lens of a POSITA. *See* Doc. 54 at 8-9; *see also* Schug at ¶¶ 20-26; Ex. C at ¶¶ 37, 40-59. The chemical structure that Waters now alleges constitutes the ordinary meaning of the term "carboxysilane" is, in fact, a "carboxylic acid" containing molecule or "silanecarboxylic acid." *See* Ex. C at ¶ 49; Ex. J at 215:10-19; 224:10-17. There is no dispute that the terms "silanecarboxylic acid" and "carboxylic acid" do not appear in the specification of '020 Patent, Mattzela, or Smith. *See* Ex. C at ¶¶ 49-52, 57; Ex. J at 215:20-216:11; 223:25-224:17. Mattzela and Smith moreover include actual test data through Auger Electron Spectroscopy and

FT-IR that indicates that "carboxysilane" as it actually exists in coatings has the chemical structure proposed by SilcoTek but not as proposed by Waters. *See* Ex. E, Fig. 9; Ex. F, Fig. 10.

A POSITA would thus not consider Waters' proposed chemical structure to be the proper construction in the context of the '020 Patent and its prosecution file history. *See Medrad*, 401 F.3d at 1319. Given that Waters' proposed construction based on extrinsic evidence is inconsistent with the written disclosure in the '020 Patent's specification, and the '020 Patent's prosecution file history, including the prior art that was considered by the PTO, it must be rejected. *See* Ex. C at ¶¶ 49, 52. That is because intrinsic evidence is given "priority" over extrinsic evidence with which it is "inconsistent." *Immunex Corp. v. Sanofi-Aventis U.S. LLC*, 977 F.3d 1212, 1221–22 (Fed. Cir. 2020) (citations and emphasis omitted); *see, e.g., Celgene Corp. v. Peter*, 931 F.3d 1342, 1350–51 (Fed. Cir. 2019) ("correct to not allow the extrinsic evidence, including expert testimony, to trump the persuasive intrinsic evidence") (citations and internal quotations omitted). It would be error "relying on extrinsic evidence that was clearly at odds with the intrinsic evidence." *Sequoia Tech.*, 66 F.4th at 1325.

The "carboxylic acid" or "silanecarboxylic acid" that Waters proposes as the construction for "carboxysilane" would not be suitable for, and in fact would not be able to exist, at the temperatures that the '020 Patent discloses are used for the CVD coating process. *See* Ex. J at 236:14-237:8. Perhaps that is why Waters used the term "amorphous carboxysilane" consistent with SilcoTek's use and disclosure of that term when Waters was prosecuting *its own* patents before this lawsuit was filed. *See* Ex. K (U.S Patent Appln. No. 16/746,108) at p. 34, ll. 15-16.⁴

⁴ In this patent application entitled, "Use of Vapor Deposition Coated Flow Paths for Improved Analytical Analysis" that was filed in 2020 but abandoned on August 11, 2023, Waters stated that: "In an embodiment with the layer 502 being amorphous carbosilane, the oxidized layer 507 formed by the oxidation (step 408) is or includes amorphous carboxysilane." *See* Ex. K.

4. SilcoTek's Construction of "Carboxysilane" Is Proper

Given that Waters' proposed construction is not the ordinary meaning of "carboxysilane" in the context of the '020 Patent as discussed above, this is not a case where SilcoTek's construction deviates from the ordinary meaning, where SilcoTek acted as its own lexicographer, or where SilcoTek had to disavow claim scope, as Waters argues. *See* Doc. 56 at 8-13. Rather, SilcoTek's proposed construction is based on the intrinsic evidence.

Waters' criticism of SilcoTek's proposed construction of "carboxysilane" for including silicon-oxygen bonds and silicon-carbon bonds and allegedly not including silicon-silicon and carbon-oxygen bonds although the figures in Mattzela and Smith also show such bonds is likewise irrelevant. SilcoTek's proposed construction includes the word "comprising" with reference to the silicon-oxygen bonds and silicon-carbon bonds thus indicating that other bonds, such as silicon-silicon and carbon-oxygen bonds, may also be present given that during the oxidation process shown in Mattzela and Smith oxygen does attach to silicon and carbon. *See also* Ex. 9 at 193:3-194:20. Dr. Schug testified that it was "critical to show that you have the silicon-oxygen and silicon-carbon bonds" in the definition. *Id.* at 195:6-20. He further testified that the "more essential elements of performing the amorphous coating would be the silicon-oxygen and silicon-carbon bonds" and that was why silicon-oxygen and silicon-carbon bonds and not silicon-silicon and carbon-oxygen bonds should be included in the proposed construction. *Id.* at 196:4-13; 196:14-197:6. Thus, SilcoTek's proposed construction does not preclude the possibility of silicon-silicon and carbon-oxygen bonds in carboxysilane, but it is not required that they are present.

Waters' further criticism that SilcoTek's proposed construction is too broad and thus encompasses polydimethylsiloxane, namely "silicone caulk" (see Doc. 54 at 9), is also unavailing as it disregards the context and claim language of the '020 Patent. Polydimethylsiloxane is a

distinctly ordered chemical compound and not a coating prepared in the context of thermal chemical vapor deposition and subsequently oxidized, and thus is outside the context of the '020 Patent. *See* Ex. C at ¶ 54. Further, simply because the claims, if broadly construed, are allegedly vulnerable to a challenge to their validity does not mean that the Court should disregard their proper construction. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 911 (Fed. Cir. 2004).

5. Waters' Enablement Argument Should Be Disregarded

Given that the Federal Circuit has held validity arguments, such as lack of enablement, are not proper during claim construction, the Court should not address Waters' lack of enablement argument here. See Haddad, 164 Fed. Cl. at 67-68; see also Phillips, 415 F.3d at 1327. Indeed, it cannot until the claims are construed. See Liebel-Flarsheim, 358 F.3d at 911-12 ("because the proper construction of the claims is clear, the questions of priority and validity are separate issues that must be separately addressed on remand"). Nor have the parties adduced and briefed any evidence pertinent to the actual enablement standard, including "undue experimentation." See Doc. 54 at 3. Waters' lack of enablement argument is not tenable in view of the disclosure set out above. See also Ex. C at ¶¶ 45-47. Waters argument that "carboxysilane" has a well-known ordinary meaning and chemical structure to a POSITA also conflicts with its position that a POSITA would not know how to make it and thus it is not enabled. See, e.g., Ex. J at 237:12-240:12.

B. "amorphous coating having a base layer and a surface layer"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary meaning –	Plain and ordinary meaning – no construction necessary
no construction necessary.	
	Lacks enablement support under 35 U.S.C. § 112(a)

Waters now admits that the construction of the term "amorphous coating having a base

layer and a surface layer" is not disputed, should have its plain and ordinary meaning, and does not require any construction by the Court. Doc. 54 at 13. That should end the inquiry, as enablement is not a question that should be addressed during claim construction. *See Haddad*, 164 Fed. Cl. at 67-68; *Phillips*, 415 F.3d at 1327.

If it is addressed, Waters is simply wrong that this term is not enabled. *See* Ex. C at ¶¶ 36-39. A POSITA at the '020 patent's priority date of August 31, 2016, could have applied an "amorphous coating having a base layer and a surface layer" without undue experimentation based on the disclosure in the '020 Patent⁵ and his or her own knowledge. Ex. C at ¶¶ 31, 38-39. Even Dr. DeFilippi admitted that prior to August 31, 2016 (the filing date of the parent application of the '020 patent), vapor deposition of silanes stood as a well-established method for surface modification. *See* Ex. 3 at ¶ 54, p. 20. A POSITA could also readily find many examples of how a coating could be applied in the prior art. *See* Ex. C at ¶ 33.

C. "unable to be concurrently coated through line-of-sight techniques"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary meaning –	"cannot be simultaneously coated through line-of-sight
no construction necessary.	techniques"
_	Alternatively, lacks written description and enablement
	support under 35 U.S.C. §112(a)

As shown in SilcoTek's opening brief, unable to be concurrently coated through line-of-sight techniques" is readily understood, and no construction is warranted. *See* Doc. 56 at 12-14. Waters however seeks to substitute the words "cannot be simultaneously" in place of the actual

⁵ The '020 specification provides a detailed description of how to prepare the coating using a thermal CVD process. *See*, *e.g.*, '020 Patent, col. 3, 1. 3 – col. 7, 1. 22; *see also* Ex. C at ¶ 32.

⁶ For example, the '368 Patent discloses that carboxysilane can be formed by chemical vapor deposition by decomposition of dimethylsilane to form a carbosilane followed by oxidation to form a carboxysilane. *See* Ex. F, col. 3, ll. 46-51.

claim language "unable to be concurrently." There is no support in the intrinsic record for Waters' proposed construction. A POSITA would certainly understand the phrase "unable to be concurrently" so there would be no need to substitute in different language in order for a POSITA to understand the claim language. *See* Schug at ¶ 30; *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372 (Fed. Cir. 2004).

Further, "simultaneously" is different than, and more limiting than, "concurrently." *See Spherix Inc. v. Vtech Telecomms. Ltd.*, No. 3:13-cv-3494-M, 2015 WL 9311489, at *13 (N.D. Tex. Mar. 19, 2015) ("a person of ordinary skill in the art would understand that 'concurrently' is not synonymous with 'simultaneous."); *Ocean Semiconductor LLC v. Huawei Device USA, Inc.*, No 4:20-CV-00991-ALM, 2022 WL 389916, at *21 (E.D. Tex. Feb. 8, 2022) ("concurrently measuring" is given its plain and ordinary meaning and is not the same as "simultaneously measuring"). There is nothing in the disclosure in the '020 Patent or its prosecution history that would require or support use of the term "simultaneously" in place of "concurrently." *See* Schug at ¶ 30. Dr. Schug did not admit that "unable" means "cannot" in a vacuum as Waters asserts; rather, Dr. Schug testified, "I think a person of skill in the art would right away understand what that means. I mean that you cannot concurrently coat this through line of sight technique." Ex. 9, 199:12–20. The '020 Patent even discloses examples of coating surfaces that are "unable to be concurrently coated through line-of-sight techniques." *See* Ex. A, col. 1, Il. 45-48, 51-52; col. 2, Il. 49-62; col. 3, Il. 29-43; col. 8, Il. 14-31; col. 11, Il. 30-44; claims 2, 20.

D. "The liquid chromatography component of claim 1"

SilcoTek's Proposed	Waters' Proposed Construction
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⁷ Waters' alternate position that the term is not enabled should not be addressed here, but is untenable in any event as a POSITA would understand the term "unable to be concurrently coated through line-of-sight techniques" and how it applies in the context of the '020 Patent, particularly given the examples in the specification. *See* Schug at ¶¶ 27, 30.

Construction	
Plain and ordinary meaning –	Invalid under 35 U.S.C. § 112(d) because it is a dependent
no construction necessary.	claim that is broader in scope than independent claim 1.

Waters does not propose a construction of this claim term, but only asserts that it is invalid under 35 U.S.C. § 112(d) because it is allegedly broader in scope than independent claim 1. As shown in SilcoTek's opening brief, this term is readily understood, and no construction is warranted. *See* Doc. 56 at 14-15. This should end the inquiry because validity arguments are not proper during claim construction. *See Haddad*, 164 Fed. Cl. at 67-68; *Phillips*, 415 F.3d at 1327.

IV. CLAIM CONSTRUCTION OF DISPUTED TERMS FROM U.S. PATENT NO. 10,881,986

A. "coated metallic fluid-contacting element"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary	"an element of a liquid chromatography system having a coating
meaning –	and a metallic substrate on the coating, where the metallic
no construction	substrate contacts fluid passing through the element"
necessary.	

As shown in SilcoTek's opening brief, this term is readily understood, and no construction is warranted. *See* Doc. 56 at 16-18. It is not ambiguous to a POSITA in the context of the '986 Patent as to where the "coat[ing]" is on the "metallic fluid-contacting element," and where the fluid contacts the "metallic fluid-contacting element." *See* Ex. C at ¶ 60; Schug at ¶ 39. A POSITA would recognize that a major benefit of the invention is to use a bio-inert coating to ameliorate incompatibility with metal surfaces in liquid chromatography systems. *See* Ex. C at ¶ 64; Ex. B, col. 2, ll. 64-65; claim 14. A POSITA would thus understand that the coating would at least be on

⁸ However, if it is addressed, a POSITA would recognize that a "system...comprising" in claim 1 is different than, and can comprise more than, just one "component" as set forth in claim 19, and thus, claim 19 is different in scope than claim 1 which covers just one component. *See* Schug at ¶ 34. Thus, Waters' invalidity contention fails.

the interior surface of the substrate in order for the "fluid to contact the coated-metallic fluid-contacting element" and thus passivate that surface to aid in the analysis of metal-sensitive compounds by not allowing the compound being analyzed from contacting the uncoated metal surface. *Id.*; Ex. B, Abstract, col. 2, Il. 64-65. As Dr. DeFilippi testified, in the 1997 time frame he "was using a dichlorodimethylsilane to coat various chromatography components to reduce interactions of those components with the analytes and the resin that was *in the column*" and "[t]he objective was to *coat the inside of the column*, but sometimes you would dip your equipment into a bath, so the outside would be coated, as well." Ex. J at 71:20-72:22 (emphasis added). A POSITA would also understand that that the coating could also be applied to the exterior surface of the substrate, as depicted in Figure 2, and as Waters' own expert acknowledged. *See* Ex. B, col. 2, Il. 46-49; Ex. J at 71:20-72:22. But for an HPLC system and HPLC components like those at issue in this patent, as even Dr. DeFilippi had to admit, a POSITA would understand that it would be desirable to have the coating on the inside of the metallic components to prevent interaction between the analyte and the metal components. *See* Ex. J at 264:23-265:5.

Waters attempt to read "an embodiment" in Figure 2 into the claim term is improper. It is well established that drawings included in a patent are not limiting. *See, MBO Labs, Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) ("patent coverage is not necessarily limited to inventions that look like the ones in the figures"); *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1342 (Fed. Cir. 2001 ("[D]rawings are not meant to represent 'the' invention or to limit the scope of coverage defined by the words used in the claims themselves."); *Skedco, Inc. v. Strategic Operations, Inc.*, 685 F. App'x 956, 960 (Fed. Cir. 2017) ("Patents do not need to include drawings of particular embodiments in order to claim them."); *see also, Amhil Enterprises Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1559 (Fed. Cir. 1996) ("the scope of a patentee's claims is not necessarily or

automatically limited to the preferred embodiment."). Further, Waters' construction reverses the plain meaning of the term from a metallic "element" with a coating to a metallic "substrate" on the coating. See Ex. C at ¶ 63; Schug at ¶ 42. As such, by restricting a "coated metallic fluid-contacting element" by what is shown in Fig 2, Waters violates fundamental principles of claim construction because a "court may not read a limitation into a claim from the specification." Innova/Pure Water, Inc. v. Safari Water Filtration Sys. Inc., 381 F.3d 1111, 1117 (Fed. Cir. 2004). Further, construing a limitation appearing in the drawings without "unambiguous language [in] the claim" is also improper. Gart, 254 F.3d at 1343.

B. "fluid"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary	"a substance used in a liquid chromatography technique having at
meaning –	least 3 distinct components: (1) a protein-containing analyte, (2) a
no construction	chelating agent, and (3) an analyte selected from the group
necessary.	consisting of tetracycline, N-hydroxypyridine-2-on, adenosine
	triphosphate, and deoxynucleotide monophosphate"

As shown in SilcoTek's opening brief, "fluid" is readily understood, and no construction is warranted. *See* Doc. 56 at 18-20. Waters' proposed construction of "fluid," however, is improper because it redundantly injects three separate express limitations from the surrounding claim language which render those other limitations redundant if incorporated into the term "fluid." *See* Schug at ¶ 45; Doc. 56 at 19. When a claim includes express limitations separate from a disputed claim term, the disputed term should not be construed to include those other limitations. *See Phillips*, 415 F.3d at 1324-1325 (finding that because the claim included an express limitation as to the function served by "baffles," the limitation was not inherent in the term "baffles"). SilcoTek does not dispute that Claim 1 of the '986 patent includes additional limitations that apply to "fluid," as Dr. Schug testified. But those limitations should not be read into the term "fluid,"

itself as they are already present in the surrounding claim language. See Doc. 56 at 19.

C. "protein"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary meaning –	"any of a class of high-molecular-weight polymer
no construction necessary.	compounds composed of a variety of α-amino acids joined
_	by peptide linkages"

As shown in SilcoTek's opening brief, "protein" is readily understood, and no construction is warranted. See Doc. 56 at 20-21. Waters, however, applies the wrong claim construction standard in arguing that "protein" should be construed to aid the jury's understanding of the term because its definition and scope allegedly will not be readily apparent to a lay juror. The ordinary and customary meaning of a claim term is the meaning that the term would have to a POSITA, not to aid the jury. See Phillips, 415 F.3d at 1313; Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed. Cir. 1998) ("It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed."). Waters does not seem to dispute that the claim term "protein" is sufficiently clear such that its plain and ordinary meaning is readily apparent to a POSITA, and thus no construction is necessary. See Schug at ¶ 46; Ex. C at ¶ 65. Waters cites to nothing in the intrinsic record of the '986 Patent to support that "protein" should be limited. Moreover, Waters' proposed construction is highly technical and would do nothing to dispel its concern that a jury may think a "protein" is "a common colloquialism for one part of a balanced

⁹ The case law that Waters cites does not support its position. In *Funai Elec. Co., Ltd. v. Daewoo Elecs. Corp.*, 616 F.3d 1357, 1366 (Fed. Cir. 2010), "[t]here was evidence in the district court that persons experienced in this field would understand this description of the insulating material, in the context in which it is used." *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, No. 08-309-LPS, 2012 WL 938926, at *6 (D. Del. Mar. 13, 2012), involved "complex technology" and the construction of a multiple line phrase, not a single word that has a plain and ordinary meaning that is readily apparent to a POSITA as is the case here.

diet." See Doc. 54 at 20.

The term "protein" as commonly understood by a POSITA would be broader than Waters' proposed definition and would not be limited to only "high-molecular-weight polymer compounds" or "α-amino acids joined by peptide linkages," as even a number of the dictionary definitions cited by Waters indicate. *See* Schug at ¶ 48; Ex. C at ¶ 67; Ex. 4 at 10-11; Ex. L-Q. Indeed, only 4 of the 10 dictionaries that Waters cites limits the definition quite the way that Waters does. *See* Ex. 4 at 10-11; *compare* Ex. L-Q to Ex. 25-28. The examples that Dr. Schug testified to regardless of whether they are "corner cases" or "rare" (as Waters alleges) demonstrate the Waters' proposed definition is too limiting. *See* Ex. 9, 226:2–17. Indeed, other courts that have construed the term "protein" differently and broader than Waters proposes. *See*, *e.g.*, *Abbott GmbH & Co. KG v. Yeda Rsch. & Dev. Co., Ltd.*, 516 F. Supp. 2d 1, 2 (D.D.C. 2007) ("Generally speaking, proteins are long chains of amino acids like beads on a string."); *In re O'Farrell*, 853 F.2d 894, 896 (Fed. Cir. 1988) ("Proteins are large polymeric molecules consisting of chains of smaller building blocks, called *amino acids*, that are linked together covalently.").

D. "analyte"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary meaning –	"a chemical substance that is being analyzed, detected, or
no construction necessary.	measured"

As shown in SilcoTek's opening brief, "analyte" is readily understood, and no construction is warranted. *See* Doc. 56 at 21-22. Waters again seeks to apply the wrong claim construction standard to "analyte" by arguing "its meaning is not readily understood by a lay juror." Doc. 54 at 21. Again, the ordinary and customary meaning of a claim term is the meaning that the term would have to a POSITA. *See Phillips*, 415 F.3d at 1313. Waters does not seem to dispute that the claim term "analyte" is sufficiently clear such that its plain and ordinary meaning is readily

apparent to a POSITA. See Schug at ¶¶ 49-51; Ex. C at ¶¶ 68-69.

But Waters' construction is more limiting than the full scope of the plain and ordinary meaning as would be understood by a POSITA as it limits "analyte" to a "chemical substance" and only for the purposes of "being analyzed, detected, or measured." Nothing in the intrinsic record or even the extrinsic evidence would require such a limited construction. For example, liquid chromatography can be used for separation or purification in addition to analysis, detection, or measurement. See Schug at ¶ 51; Ex. C at ¶ 70. Chemical "analysis" (i.e., being analyzed) includes a variety of potential steps, including sample preparation (purification; simplification of a mixture containing analyte), and likely chemical separations, if the analyte is contained in a complex mixture. Ex. C at ¶ 70. The Federal Circuit also affirmed the construction of the term "analyte" in the field of analytical chemistry, which is also the field here, much more broadly as "the component of a sample that is to be determined." See Abbott Labs. v. Syntron Bioresearch, Inc., 334 F.3d 1343, 1354 (Fed. Cir. 2003). Even the definitions from Dr. Schug's book and the district court that Waters cites differ from Waters' proposed definition. See Doc. 54 at 21-22.

E. "chelating agent"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary	"a chemical substance that binds to metal ions in the fluid
meaning –	flow-path to improve the analysis, detection, or measurement
no construction necessary.	of metal-sensitive analytes"

As shown in SilcoTek's opening brief, "chelating agent" is readily understood, and no construction is warranted. *See* Doc. 56 at 23-24. As with "protein" and "analyte," Waters improperly seeks to construe "chelating agent" so a lay juror will understand it, although Waters admits that a POSITA would understand it. *See* Dc. 54 at 22. That should end the inquiry. Further, Dr. Schug did not testify that he agreed with Waters' proposed construction, but rather testified

that it was "one way to define chelating agent" but that it "does not need to be defined for a person of ordinary skill in the art." See Ex. 9 at 242:25-243:6; Schug at ¶ 55; Ex. C at ¶ 74. Waters' construction is more limiting than the full scope of the plain and ordinary meaning of "chelating agent" as would be understood by a POSITA as it limits it to a "chemical substance" and only for the purposes of binding "metal ions in the fluid flow-path" – which Dr. Schug testified was only "one way to use them" - and only for the purpose of improving "the analysis, detection, or measurement of metal-sensitive analytes" - which Dr. Schug testified "doesn't necessarily encompass all that a person ordinary skill in the art would understand chelating agent could be or could be used." See Ex. 9 at 243:7-243:13; Schug at ¶ 55; Ex. C at ¶¶ 74-75. Dr. Schug further testified that the definition of chelating agent in his textbook is "not the same" as Waters' proposed construction and there is no reason to define the term "narrowly." See Ex. 9 at 245:8-15. Likewise Waters' citation to industry competitor Agilent Technologies' 2016 Liquid Chromatography Handbook, extrinsic evidence that neither expert relied upon, is also different than Waters' proposed construction because it adds that "chelating agent" can be used to "improve the separation." See Doc. 54 at 23. Further, another court construed the term different and more broadly than Waters proposes. See Cumberland Pharms., Inc. v. Mylan Institutional LLC, 137 F. Supp. 3d 1108, 1112 (N.D. III. 2015), as amended (Oct. 2, 2015), aff'd, 846 F.3d 1213 (Fed. Cir. 2017).

F. "incompatible with one or both of titanium and polyether ether ketone"

SilcoTek's Proposed	Waters' Proposed Construction
Construction	
Plain and ordinary meaning –	"not capable of being used with titanium or polyether
no construction necessary.	ether ketone"

As shown in SilcoTek's opening brief, this term is readily understood, and no construction is warranted. *See* Doc. 56 at 24-25. Waters' proposed construction simply substitutes "not capable

of being used" for the claim term "incompatible." A POSITA, however, would not understand "incompatible" to mean the same as "not being capable of being used." *See* Schug at ¶ 9, p. 18; Ex. C at ¶ 78. Even some of the extrinsic dictionary definitions that Waters cites do not support its construction. *See*, *e.g.*, Ex. 33 at WATERS0009451 ("not suitable for being mixed or used together")).

Contrary to Waters' assertion, "incompatible" is not a term of degree, is not indefinite, and should have its plain and ordinary meaning. See Cardsoft (Assignment for the Benefit of Creditors), LLC v. Gores Grp., LLC, No. 2:12-CV-325-JRG-RSP, 2013 WL 6225551, at *23 (E.D. Tex. Nov. 27, 2013) ("incompatible" has its "plain and ordinary meaning"). A POSITA would understand that something is either incompatible or not. See Ex. C at ¶ 79. The '986 Patent makes clear that "incompatible" does not mean "not being capable of being used" because as Waters even cites, the '986 Patent discloses that "[e]mbodiments of the present disclosure ... permits operations with fluids incompatible with titanium under certain conditions" and "permits operations with fluids incompatible with polyether ether ketone." Ex. B, 2:57–3:8 (emphasis added). If it "permits operations with" even if "incompatible" it cannot be said to be "not being capable of being used." Thus, even if "incompatible" is considered a "term of degree" as Waters asserts, it is not indefinite. See Interval Licensing LLC v. AOL, Inc., 766 F.3d 1364, 1370 (Fed. Cir. 2014) ("Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention."); DDR Holdings, LLC v. Hotels.com, L.P., 773 F.3d 1245, 1260 (Fed. Cir. 2014).

V. CONCLUSION

For all of the above reasons, Waters' proposed constructions should be rejected and its enablement arguments should be tabled.

Respectfully submitted,

FAEGRE DRINKER BIDDLE & REATH LLP

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s/ Thatcher A. Rahmeier

Francis DiGiovanni (No. 3189) Thatcher A. Rahmeier (No. 5222) 222 Delaware Avenue, Suite 1410 Wilmington, DE 19801 302.467.4200 francis.digiovanni@faegredrinker.com thatcher.rahmeier@faegredrinker.com

AND

Cecilia R. Dickson

Kent E. Baldauf, Jr.
Barry J. Coyne
THE WEBB LAW FIRM
One Gateway Center
420 Ft. Duquesne Blvd., Suite 1200
Pittsburgh, PA 15222
412.471.8815
cdickson@webblaw.com
kbaldaufjr@webblaw.com
bcoyne@webblaw.com

Attorneys for SilcoTek Corporation

CERTIFICATE OF SERVICE

I hereby certify that on the 15th day of March, 2024, I served the foregoing **PLAINTIFF'S RESPONSIVE CLAIM CONSTRUCTION BRIEF**, via email, on all counsel of record.

FAEGRE DRINKER BIDDLE & REATH LLP

s/ Thatcher A. Rahmeier

Thatcher A. Rahmeier